

AMENDMENTS TO THE DRAWINGS

The attached replacement sheet of drawings includes a change to Fig. 2. This sheet, which includes Fig. 2, replaces the original sheet including Fig. 2. In Fig. 2, reference character 6' has been added to indicate the helical wound cutting edges.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Entry of this amendment and reconsideration of the present application, as amended, are respectfully requested.

Claims 2-8, 10 and new claims 11-20 are presently active in this application, claims 1, 2 and 9 having been canceled. Claims 3-10 are amended. Unless an argument is made below to distinguish a claimed embodiment over the cited prior art based on a particular change to the claim, the changes to the claims do not relate to patentability.

Drawings

In response to the Examiner's objection to the drawings, it is pointed out that reference character 1 designates the drill in its entirety whereas reference character 6 designates the drill part, i.e., the drill 1 includes a shaft part 2 having a head part 3, and the drill part 6 which is joined to the shaft part 2.

The specification has been amended to indicate that the abrasive material on the pin projection 8 is designated by reference character 10 as illustrated in Fig. 2.

In view of the foregoing, it is respectfully submitted that the Examiner's objection to the drawings has been overcome and should be removed.

In addition, proposed revised Fig. 2 is submitted herewith including reference character 6' indicating the helical wound cutting edges on the drill part 6. No new matter is introduced by the submission of revised Fig. 2.

Specification

The specification has been amended to include section headings as suggested by the Examiner.

Claim Objections

Claim 1 has been canceled and therefore the objection to this claim has been rendered moot.

Claim Rejections-35 U.S.C. §103

Claims 1-3, 6 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kurer et al. (U.S. Pat. No. 5,118,294) in view of Appleby (U.S. Pat. No. 4,897,037). Claims 4 and 5 were rejected

under 35 U.S.C. §103(a) as being unpatentable over Kurer et al. in view of Appleby and Oyamada et al. (U.S. Pat. No. 6,565,356). Claims 7 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kurer et al. in view of Appleby and Vrespa (U.S. Pat. No. 5,259,398). Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurer et al. in view of Appleby and Plischka (U.S. Pat. No. 4,466,795).

Claims 1 and 2 have been canceled and therefore the rejection of these claims has been rendered moot.

The Examiner's remaining rejections are respectfully traversed on the grounds that the cited prior art does not disclose all of the features set forth in independent claim 3.

Claim 3 is directed to a drill (1) to extract roots of teeth and includes a shaft (2) having a head (3), a boring drill part (6) including at least one helical groove (7), a pin projection (8) arranged at a forward end of the drill part (6) and a taper (11) arranged at a transition between the drill part (6) and the pin projection (8). The pin projection (8) has a smaller diameter than the drill part (6) and an abrasive material (10) is arranged on the pin projection (8) including its tip (9). Further, the pin projection (8) including at least one helical groove (7') extending to the at least one helical groove (7) on the drill part (6). Thus, as shown in Fig. 2, the helical groove (7') on the pin projection (8) is connected to the helical groove (7) on the drill part (6).

Since the helical groove (7') of the pin projection (8) extends to the helical groove (7) of the drill part (6), it extends through the taper (11) at the transition between the pin projection (8) and the drill part (6). An advantage of this is that drilling material is easily carried away from the tip (9) of the pin projection (8) first through the helical groove(s) (7') in the pin projection (8) and then through the helical groove(s) (7) in the drill part (6) (see the discussion of this in the specification in the paragraph bridging pages 4 and 5).

Moreover, the combination of the pin projection (8) having a smaller diameter than the drill part (6), the presence of abrasive material (10) on the pin projection (8) and the taper (11) at the transition

between the pin projection (8) and the drill part (6) enables formation of a well-defined, long anchorage in teeth when the drill is used to drill bores in teeth, and therefore a reliable condition for a screw to be screwed into the drilled bore.

The cited prior art does not disclose, teach or suggest a pin projection arranged at a forward end of a drill part, which includes at least one helical groove, and which also includes at least one helical groove which extends to the groove(s) on the drill part, and a taper arranged at a transition between the drill part and the pin projection.

Kurer, Appleby and Oyamada et al. and Plischka disclose dental drills and burs which do not include any helical grooves in a drill part and a pin projection arranged at a forward end of the drill part and which has a smaller diameter than the drill part and at least one helical groove which extends to the helical groove of the drill part.

Vrespa shows a screw for fixing prostheses to bones. The embodiment shown in Fig. 8 has a self-tapping thread 23 which is separated from a thread part 22 by a taper.

It is respectfully submitted that the screw of Vrespa is not comparable to a drill to extract roots of teeth as set forth in claim 3, and therefore one of ordinary skill in the art would not consider it obvious to combine any aspect of the screws of Vrespa with the dental drills and burs of Kurer and Appleby as suggested by the Examiner. Note that Vrespa discloses a separate drill for use with the screws disclosed therein. This drill is shown in Fig. 9 and has along its axis, two grooves and respective cutting edges. The cutter part 106 includes three coaxial cutting bodies 103, 105, 107 with different diameters. However, the drill lacks the features set forth in claim 3.

Thus, in contrast to the present claimed invention, the drills in the cited prior art do not include a drill part and a pin projection having abrasive material, with a helical groove formed in the pin projection and extending to a helical groove in the drill part to thereby enable efficient carrying away of drilling material caused by rotation of the abrasive pin projection when forming, for example, bores in teeth.

In view of the foregoing, it is respectfully submitted that the cited prior art, taken individually or in combination, does not disclose all of the features of independent claim 3 and thus cannot render obvious claim 3 or claims 4-8 and 10 which depend therefrom. It is therefore respectfully submitted that the Examiner's rejections of claims 3-8 and 10 have been overcome and should be withdrawn.

New Claims

Claims 11-20 are presented directed to other aspects of the invention as disclosed in the specification. No new matter is introduced by the presentation of claims 11-20 and no fee is due for their presentation.

Petition for Extension

Applicant hereby petitions for a two-month extension to extend the time for response to the Office Action dated August 30, 2007 for two months from November 30, 2007 to January 30, 2008.

The petition fee of \$230, applicant qualifying for small entity status, is submitted herewith.

An early and favorable action on the merits upon entry and consideration of this amendment is earnestly solicited.

FOR THE APPLICANT
Respectfully submitted,

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